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# BestScan® S10 Ultrasound System



## **IMPORTANT!**

Read and understand this manual before operating the equipment. After reading, keep this manual in an easily accessible place.

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# Statement

This BestScan® S10 Ultrasound System User Guide provides information on preparing and using the BestScan® S10 ultrasound system and on cleaning and disinfecting the system and transducers. It also provides system specifications, and safety and acoustic output information.

BMV reserves the right of final interpretation to this Manual.

The content of this Manual is subject to change without prior notice.

Only if the following requirements are met, BMV will be responsible for the safety, reliability and performance of the product, i.e.:

- Assembly, expansion, re-adjustment, improvement and repair should only be performed by qualified personnel approved by BMV;
- All the replaced parts and supported accessories and consumables relate to the maintenance shall be originally from BMV or others approved by BMV;
- DO NOT make changes or modifications to the software or hardware of this system
- The electrical equipment complies with relevant standards and the requirements of this Manual;
- The product is operated in accordance with this Manual.

## Conventions

The user guide follows these conventions:

- A WARNING describes precautions necessary to prevent injury or loss of life.
- A Caution describes precautions necessary to protect the products.
- Numbered steps in procedures must be performed in order.
- Items in bulleted lists do not require a sequence.

# Preface

## Notice

This User Manual is the necessary instructions for the safe use of this product. This Manual introduces the use, properties, method of operation, safety information and intended use of the BestScan® ultrasound system in details. Before using the product, please carefully read and understand the contents of this Manual, and abide by the method of operation stated in this Manual in order to ensure the safety of Animal patients and operators.

This User Manual is a major component of the product, and should always be placed near the product for easy reference.

## Object of Application

The user guide is for a reader familiar with ultrasound techniques. It does not provide training in sonography or clinical practices. Before using the system, you must have ultrasound training. See the applicable BMV accessory user guide for information on using accessories and peripherals. See the manufacturer's instructions for specific information about peripherals.

## Illustration

All the illustrations in this user Manual are for reference only. The menus, settings and parameters of the illustrations may be different from your actual currently use system. The content varies depending on the software version, preset settings and optional configuration.

## Customer comments

Questions and comments are encouraged. BMV is interested in your feedback regarding the system and the user guide.

Please call BMV at +86-755-26564580 in the China. Outside the China, call the nearest BMV representative. You can also e-mail BMV at sales@bmv.cc

For technical support, please contact BMV as follows:

## BMV Technical Support

Phone(China ):+86-755-26564580

Phone(Outside China): +8613500002887,Or call your local representative.

Fax:+86-755-26564580 ext 886

E-mail:sales@bmv.cc

Web site: www.bmv.cc

Click Resources > Support& Service.

**Distributors contact details** can be found at www.bmv.cc

## Warranty

The BestScan®S10 system includes 2 years from shipment, the probes warranty period is 1 year from shipment. BMV does not warrant against normal wear and tear, nor damage caused by accident or abuse. Lifetime warranty is available on request.

To purchase extended warranty programs, go to [www.BMV.cc/contact-us](http://www.BMV.cc/contact-us) and contact BMV.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

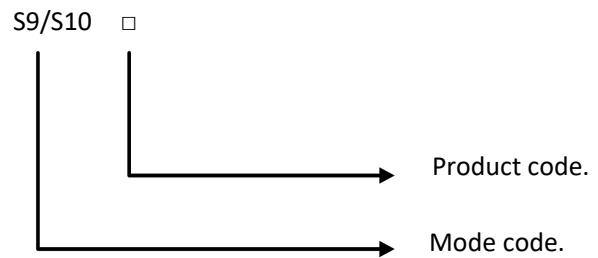
## Exemptions

BMV's obligation or liability under this warranty does not include any transportation or other charges or liability for direct, indirect or consequential damages or delay resulting from the improper use or application of the product or the use of parts or accessories not approved by BMV or repairs by people other than BMV authorized personnel.

**This warranty shall not extend to:**

- **Malfunction or damage caused by improper use or man-made failure.**
- **Malfunction or damage caused by unstable or out-of-range power input.**
- **Malfunction or damage caused by force majeure such as fire and earthquake.**
- **Malfunction or damage caused by improper operation or repair by unqualified or unauthorized service people.**
- **Malfunction of the instrument or part whose serial number is not legible enough.**
- **Others not caused by instrument or part itself.**

## Product and Model Code



**NOTE:** The functions described in the basic user manual may vary depending upon the specific system you purchased.

### Model Code:

S9: 2D ultrasound, International Sales

S10: Color Doppler ultrasound, International Sales

S9 Plus/ S10 Plus: Reserved

### Product code:

RL: Rectal convex scanner, 128 elements

RC: Rectal linear scanner, 128 elements

## Dimensions and Weight

Main unit external dimensions:

185mm (L) × 80 mm (W) × 35mm (H)

System weight: 650g (including batteries, without power adapter)











Goggles Dimensions:

257mm(L)×215mm (W) × 75mm (H)

Goggles weight:370g (without accessories)

## Symbols

This system may use the symbols listed in the following table, and their meanings are explained as well.

No.	symbol	Description
1		Type-BF applied part
2		Caution!
3		General warning sign (Background color: yellow).
4		USB port
5		Battery
6		Please refer to the instruction manual
7		Serial Number
8		Manufacture date
9		Manufacture information
10		This product is provided with a CE marking in accordance with the regulations stated in Council Directive 93 / 42 / EEC concerning Medical Devices. The number adjacent to the CE marking (0123) is the number of the EU-notified body certified for meeting the requirements of the Directive.
11	Control Panel	Operator-system interface or control.
12	Power input	Connect power adapter

# Chapter 1: Getting Started

## About the system

The BestScan® S10 ultrasound system is a portable, general purpose, software controlled, diagnostic ultrasound system used to acquire and display high-resolution, real-time ultrasound data through a COTS (commercial off-the-shelf) Android™ device or Apple iOS(Revised). The BestScan® S10 ultrasound system series of wireless scanners are Wi-Fi-based scanners that communicate with a traditional tablet/smartphone via direct Wi-Fi to allow users to export ultrasound images and display in different modes of operation. The scanner houses a battery and power generator, multichannel beamformer, prescan converter and Wi-Fi components. The battery is internally installed and comes with a charger.

## Indications for Use

The BMV Ultrasound Scanner is a software-based ultrasound imaging system and accessories intended for use in bovine/equine/Ovine Imaging of farm Conditions on the general public.

The BestScan®S10 digital ultrasound diagnostic system supports the following application:

- Bovine
- Equine
- Ovine

## Basic steps

- 1 Turn the system on. Now BMV Scanner is on standby waiting for the BMV Ultrasound App to start.
- 2 Start the BMV Ultrasound App.
- 3 Tap Animal Patient, and complete the patient information form.
- 4 Select the type of examination you want to perform.
- 5 Tap Mode and select an imaging mode.

## System features

- The fixed high resolution broadband probe supports a wide application range from magnified superficial study to deep penetration pregnancy work;
- Easily cleaned; all component parts can be wiped down to clean;
- 12 hours continuous use from external rechargeable battery and even longer using the power bank;
- Lightweight unit for less strain;
- The image may be viewed on a choice of displays;
- Images may be stored, for later review. Stored images may be uploaded to computer/cloud(reserved) via wifi, Bluetooth, USB or printed with optional accessories.
- Workflow: Point-and-Shoot BestScan® S10 with simplified workflow with focused on-farm animal exams, is almost as easy to use as the camera on your smart phone. You don't have to make adjustments unless you want to.

## System Configuration

### Standard Configuration

Main unit(including probe, battery and dock)

### Accessories

- Basic user manuals
- Belt for S10 main unit
- Power adapter and connecting cable
- Carrying case

### Options

#### Probes Available

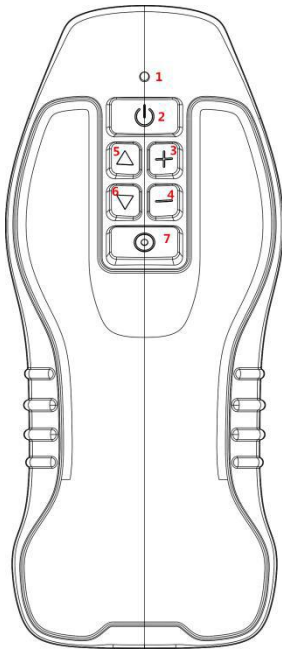
Probe model	Type	Intended Use	Region Applied
C5-2	Rectal curve	Reproduction	Transvaginal
L11-4	Rectal linear	Reproduction	Transvaginal

#### Other Options

No.	Item
1	Video Converter (HDMI to VGA+S-Video)
2	Smart Device(Android or iOS)
3	Remote Viewing Display
4	Power bank



## Main Unit



### Adjusting gain and depth using the scanner buttons

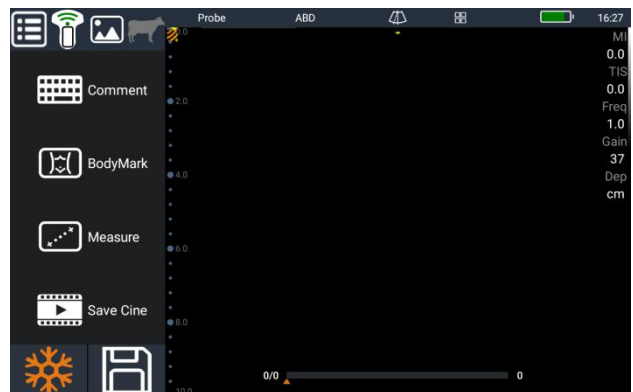


In live scanning, pressing “Gain+” button will increase the Gain of image; and pressing “Gain-” button will decrease the Gain of image.

In live scanning Pressing “Depth+” button will increase the depth of image; and Pressing “Depth-” button will decrease the depth of image.

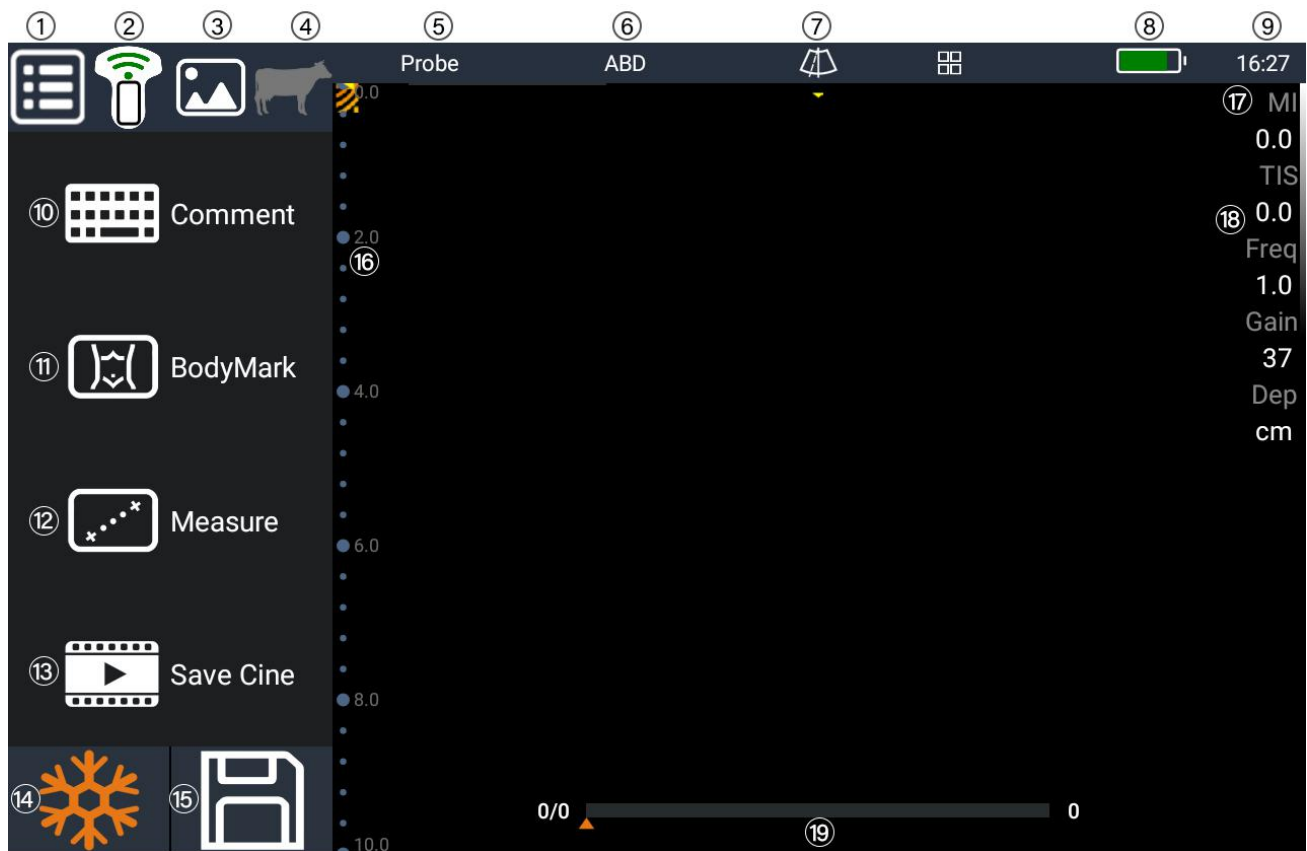
NO	Item	Description
1	Light	<b>Blue light:</b> Turn on: Light is flashing quickly Freeze: Light is flashing slowly Live scanning: Light is on Turn off: Light is off <b>Green light:</b> Charging: Light is flashing Charging finished: Light is off
2	Power button	Long press: Turn on/off the system Short press: Freeze or unfreeze the image
3	Gain+ button	In Gain/Depth menu: to increase Gain In parameter menu: to increase the parameter
4	Gain- button	In Gain/Depth menu: to decrease Gain In parameter menu: to decrease the parameter
5	Main button	Long press: One touch Optimize (Reversed) Short press: Image mode selection
6	Depth+ button	In Gain/Depth menu: to increase Depth In parameter menu: to up parameter menu
7	Depth- button	In Gain/Depth menu: to decrease Depth In parameter menu: to down parameter menu

### Freeze or unfreeze images using the scanner buttons



In live scanning, short pressing “Power Button” will freeze image; and in freeze status, short pressing “Power Button” will unfreeze image and return to living scanning.

## Screen layout



NO.	Item	Description
1	Setting	Probe information Exam list Preset Exit
2	Main unit	Press it for wifi connect menu Wifi connect status: when not connected to gray, after the connection is Green. Main unit battery level: After the success of the probe connection, displays the battery of system
3	Thumbnail	Press it for thumbnail
4	Animal patient	Press it for patient information menu
5	Probe Type	The mode of probe: When the connection is successful according to the current use of probe type, such as C5-2Ks
6	Exam Type	Select the exam type: Connect the current type of inspection, such as the abdomen, etc
7	Guide Line	For puncture (reserved)
8	Battery	Smart device battery level: Show the current terminal display device
9	Time	Scanning time
10	Comment Button	Annotation capabilities into the key

11	Body mark Button	For body mark
12	Measure Button	Measuring function into the keys
13	Save Cine	More consecutive frames image storage
14	Freeze Button	Freeze/thaw on the current active window for operation.
15	Save Image	It is effective for implementing scan status and freeze status, and clicking to save the current single frame image.
16	Depth Scale	Real-time display depth scale.
17	Gray Scale	Grayscale level display bar.
18	List of parameters	When the instrument is working, the specific working status and parameters are shown here.
19	Cine bar	The information of Cine

The concept of the BMV Ultrasound Scanner scanners and software is primarily to provide an easy to use, high-performance, low-cost, ultrasound platform for teaching and clinical applications.

## Software

### Method 1:

If the “BMV Go Scan” App is not installed in your mobile Android device, open the QR code software to scan below QR code , when the App comes, it is free to install the App.



### Method 2:

Download the App software from website <http://www.bmv-vet.com/en/bmv-go-scan>

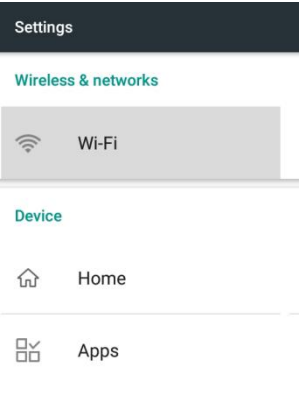
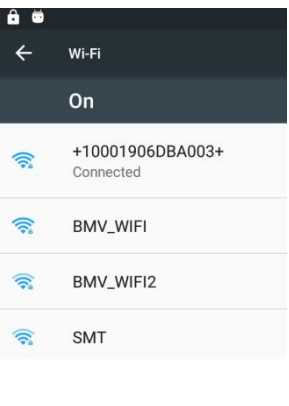
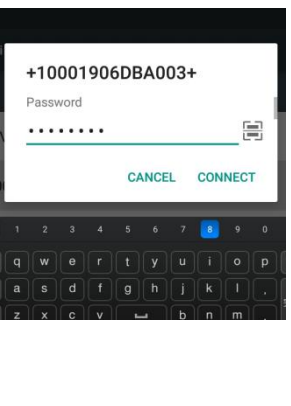

1. Transfer the App software to your tablet or phone.
2. Open your tablet or phone, click "file" - " internal storage" then install the APP "BMV Go Scan" software

**Installation:**

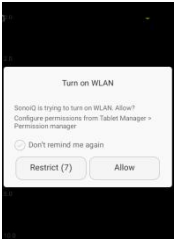
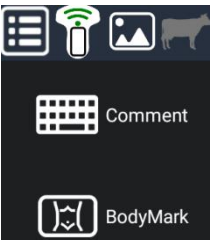


1. Download the software to the smart device.
2. Install the software on the smart device following the required steps.
3. Now the APP is ready for scanning.

<b>WARNING:</b>	<ol style="list-style-type: none"> <li>1. Before installation, please check the operating system to satisfy the requirement of the system running environment of the version.</li> <li>2. Before installation, ensure that the storage space is enough.</li> <li>3. If the installation package can't open the right, may be downloaded files are damaged, the data error.Please delete after a specified website to download again.</li> <li>4. The installation process, the user must agree to the installation of the system required permissions.</li> <li>5. After the success of the installation, if the application is not open properly, please uninstall and reinstall the software..</li> <li>6. Ensure SMS, phone calls, and other features closed, to prevent the application of interference.</li> <li>7. For the first time after installation, in view of the running environment is different, the application runtime related authorization request, users must agree to the request application, refused permission application may lead to partial function of application software can't normal use.Than, for example: the Android 6.0 system, have not agreed to "location service" application will lead to the probe hot WiFi cannot get normally.</li> </ol>
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To activate the scanner with smart devices (Tablet, Phone and Goggles), ensure that the scanner is charged. This way of connection is suggested.

			
<p>1. Press “Power Button” to switch on the scanner. Press “Setting” on the smart device. Then to link the Wifi from S10.</p>	<p>2.Click the wifi ID of S10 scanner, each scanner has an ID, but similar as“ +1001906DBA003+”.</p>	<p>3.Input the password “ 12345678” to connect the smart device to S10 scanner.</p>	<p>4.Open the S10 scanner APP on smart device. S10 is connected and ready for scanning</p>

To activate the scanner with smart device, ensure that the scanner is charged. As the version of tablet, phone is various, if it fails to connect by below steps, try to connect by the first way.

			
<p>1.Press “Power Button” to switch on the scanner. Open app on the smart device. The app will request to connect to the internet, Click Allow.</p>	<p>2.Click “ Probe status“ on the Top of menu to enter the “wifi Connect” menu.</p>	<p>3.Select the right probe and click “ Connect “ to connect the probe to smart devices.</p>	<p>4.After the probe connected to smart device, click OK to begin scanning</p>

## Preparing the system

### Display devices

- Smart device (tablet, phone)
- Goggles

### The battery

Battery manufacturer	Shenzhen BoLiMei Co., Ltd Produced for BMV
Model number	TT3845
Technological characteristics	7.4V/4000mAh
Battery chemistry	Li-ion
Battery management	JEITA guideline compatible charger, in-pack fuel gauge with protection circuitry, cell balancing, and temperature monitoring
Battery life	500 - 1000 discharge cycles before reduction in charge

<b>WARNING:</b>	To avoid data loss and to conduct a safe system shutdown, always keep a battery in the system.
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### Using AC power and charging the system

The battery charges when the system is connected to the AC power supply. A fully discharged battery recharges in less than five hours.

The system can run on AC power and charge the battery if AC power is connected to the system.

The system can run on battery power for up to 12 hours, depending on the imaging mode and the WIFI intensity. When running on battery power, the system may not restart if the battery is low. To continue, connect the system to AC power.

<b>WARNING:</b>	If users in the United States connect the adaptor to a 240V supply system, the equipment shall be connected to a center-tapped single phase supply circuit.
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### Turning the system on or off

Before you begin using the BMV Ultrasound Scanner, make sure you have the scanner, and also your smart device with the BMV Ultrasound App installed on it.

**To turn on the system:**

- Power on the system
- Open the BMV Ultrasound App by swiping the screen up.
- Connect from the Wi-Fi.

Turn off the system on the opposite routine. If you close the BMV Ultrasound App without ending the exam, the system pauses the exam. Press the power switch.

<b>WARNING:</b>	In order to ensure the safety of the probe, work effectively, the need for daily inspection. Once the check to the abnormal situation, should immediately close the probe and contact with the service representative. If the probe will cause abnormal use of examination results is not accurate and even harm the patient and damage the probe itself.
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**To open the BMV Ultrasound App on your smart device:**

Go to your smart device's home screen and tap . The BMV Ultrasound App opens to the sign-in screen.  
Exiting the BMV Ultrasound App

**To wake up the system:**

To conserve battery life while the system is on, the system goes into sleep mode if scanning for a preset time.

## Preparing transducers

<b>WARNING:</b>	While every attempt has been made to make the probe as rugged as possible the crystal array remains vulnerable and should be protected from knocks. Even a small knock against a hard object can cause damage to the probe elements situated behind the thin rubber coating on the probe face. The probe has a protective sheath covering the length of cable subject to greatest wear and flexing. Any damage to this sheath or the rest of the cable should be repaired before further use to prevent moisture ingress that will rapidly damage the probe. The probe should be checked regularly for such damage.
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## Intended uses

The system transmits ultrasound energy into various parts of the veterinary patient's body to obtain ultrasound images as follows.

**Obstetrical Imaging Applications:**

You can assess the fetal anatomy, viability, estimated fetal weight, gestational age, amniotic fluid, and surrounding anatomical structures.

**Gynecology and Infertility Imaging Applications:**

You can assess the uterus, ovaries, adnexa, and surrounding anatomical structures.

# Chapter 2: System Setup

The setup pages let you customize the system and set preferences.

## Operating System

Using the BMV Ultrasound Scanner on a smart device with Android™ and Apple IOS.

Note: Performance of WIFI varies by model.

- Access to user documentation is dependent on the proper download and installation of the BMV Ultrasound Scanner on your smart device.
- Using a smart device that is too small may not have the necessary resolution for viewing small structures.

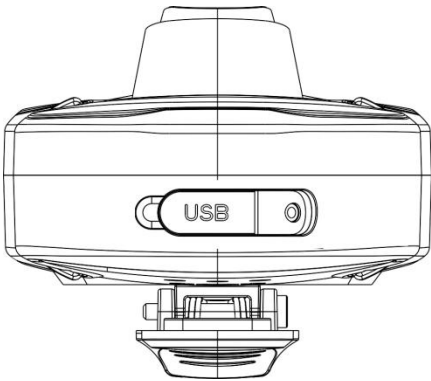
Updating the BMV Ultrasound Scanner

## Software Updates

For software updates, contact BMV or distributor for new software.

## Charging

The battery can be charged with an adaptor type-C port. It can also be charged with wireless charger.



Type-C interface: External adapter power supply. for connecting the power adapter to charge.



Wireless charger: Put S10 system flat on the wireless charger. The light on the charger is on.

<b>WARNING:</b>	A full discharged battery should be fully charged within 5 hours. While in a good condition, the battery run time will be 12hours (assuming 50% idle time between scans). Electrical connection to the power pack is through the gold pads on battery and scanner. Power pack output is protected but care should be taken to prevent short circuiting the gold connector pins and pads.
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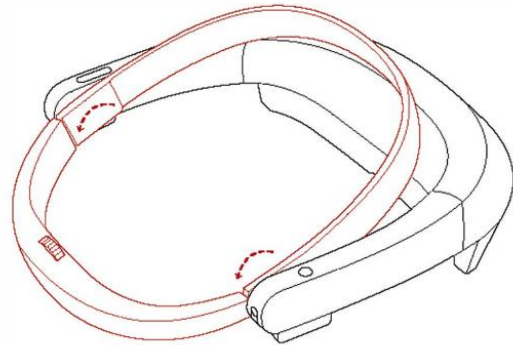
## Goggles



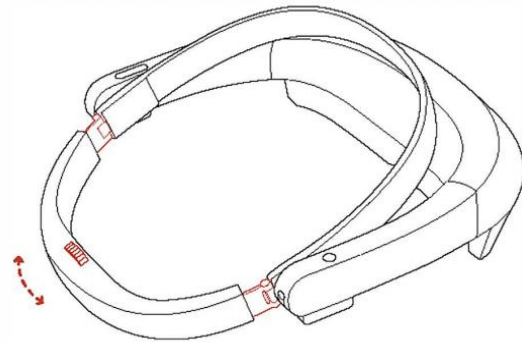
**I-Scan Goggles could be used while charged with a power bank**

<b>Notice:</b>	Please wear I-Scan in a safe place without obstacle. Please do not wear I-Scan when driving or doing any potential safety hazard.
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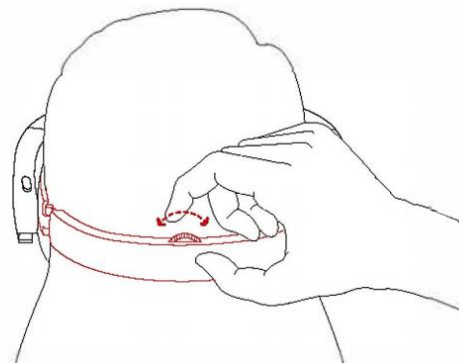
### I-Scan Goggles wearing



Put the strap in a comfortable Position

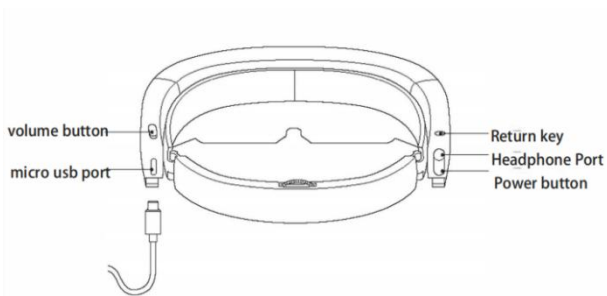


Adjust the roller to enlarge the strap



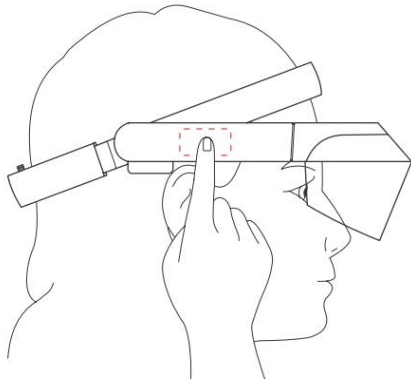
Adjust the roller at the back for comfortable wearing

### I-Scan Goggles Menu



Power button	Long press to power on/off the device
Volume button	Press to up/ down volume
Return key	Press to return to last menu
Headphone port	The port for headphone
Micro USB port	The port for charging and export the images

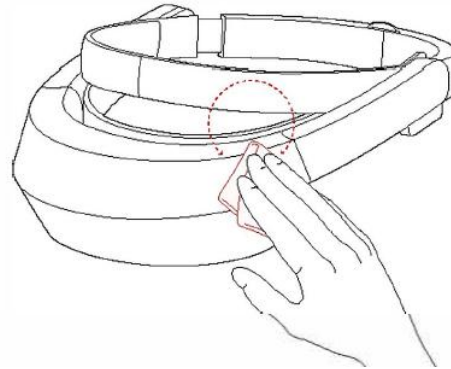
**Touch pad on I-Scan Goggles**



I-Scan Goggles could be controlled by the touch pad on side of Goggles.

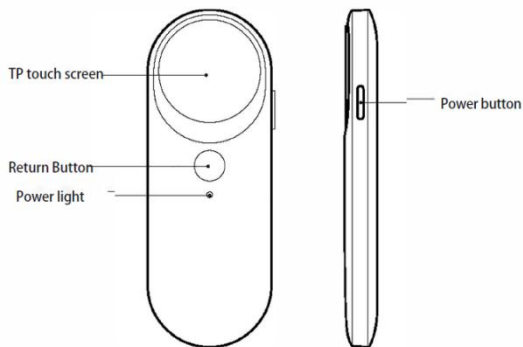
Slide	Select menu
Click	Confirm

**Maintenance**



When using, keep your hand clean and avoid dust on the device and not touch the mask with hand. Wipe the device with fiber cloth in the box.

**Bluetooth controller for I-Scan Goggles**



I-Scan Goggles could be controlled by the touch pad on side of Goggles

TP touch screen	Slide to select menu Click to confirm
Return	To return to last menu
Power	The light is on when power on the
Power button	To power on/ off the controller

# Chapter 3: Go Imaging

## Image Adjustment

Before optimizing the image by adjusting image parameters, adjust the brightness and contrast of the monitor to the best.

Intension	Action
To modify the brightness	Adjust gain Adjust TGC Adjust AP (do try to adjust gain first before increasing the acoustic power)
To modify gray scale image effect	Adjust DR Adjust Gray Map Adjust Persistence
To increase frame rate of gray scale imaging	Decrease depth Decrease the Focus Pos in B mode

## Imaging modes

Imaging modes available depend on the transducer and exam type.

### 2D imaging

2D is the system's default imaging mode. The system displays echoes in two dimensions by assigning a brightness level based on the echo signal amplitude. To achieve the best image quality, properly adjust the screen brightness, gain, depth, and viewing angle. Also, use a suitable optimization setting and exam type.

To display the 2D image

- Turn on the system.
- Tap B/M Mode to select the image mode
- Adjust the image as needed.










## Live scanning with B mode





No.	Item	Description
1	Image mode	B/M Mode:When you enter the software interface, the default mode is B, and you can switch to M mode by clicking the B icon again.
2	Parameter	For more parameter adjusting
3	Gain adjusting	Up-and-down sliding Virtual Roller Adjustment gain
4	Depth adjusting	Up-and-down sliding Virtual Roller Adjustment depth
5	Freeze button	To freeze or unfreeze the image
6	Scanning parameter	The setting parameters when scanning
7	Focus	Adjustable focus area, according to different depth
8	Image display area	Display image and direction of each probe mode identification, time line (M mode), the axis (including depth axis, time axis), and a gray scale display comments, measurement, and other information

More parameter adjusting: Press Title to decrease the related parameter; Press the Number to increase the parameter. Press either Title or Parameter to change the On or Off status.

The parameter list as below:

  	  	  
Depth 4.9	FrameCorre 3	A.Power 70
Gain 60	TSI General	QBeam Off
Freq 7.5	Enhance 4	Expand Off
Focus Pos 3	Gray Map 7	L/R Flip Off
DR 75	A.Power 76	U/D Flip Off

### Live scanning with M mode

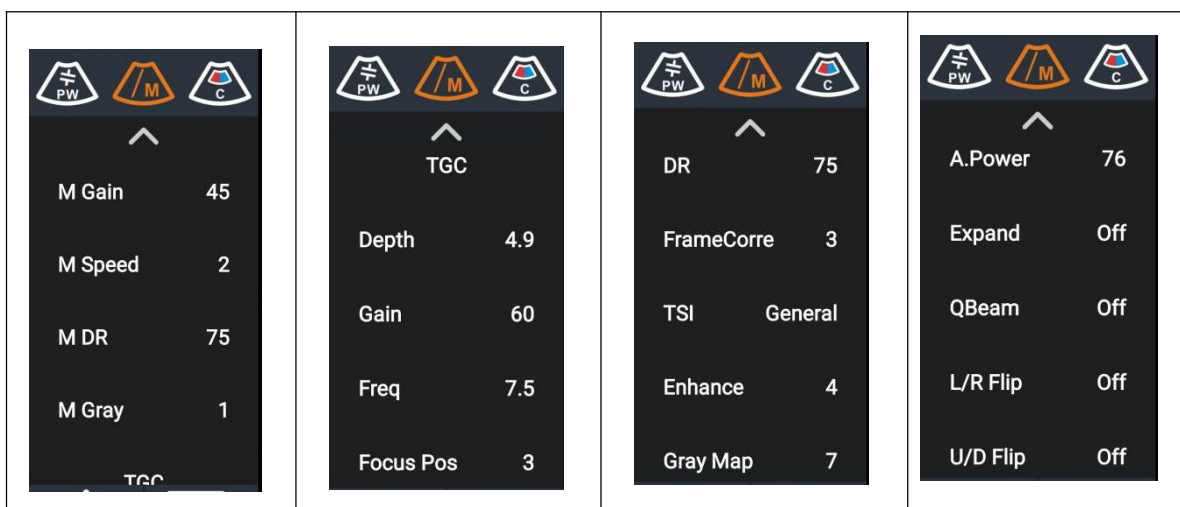
Press  adjusting the image mode from B mode to M mode, and press  adjusting the image mode from M mode to B mode.



No.	Item	Description
1	Image mode	B/M Mode:When you enter the software interface, the default mode is B, and you can switch to M mode by clicking the B icon again.
2	Parameter	For more parameter adjusting
3	Gain adjusting	Up-and-down sliding Virtual Roller Adjustment gain
4	DR adjusting	Up-and-down sliding Virtual Roller Adjustment DR
5	Freeze button	To freeze or unfreeze the image
6	Sample line	Guide Line
7	Depth	To show depth of image
8	Focus	Adjustable focus area, according to different depth
9	Scanning parameter	The setting parameters when scanning
10	Image display area	Display image and direction of each probe mode identification, time line (M mode), the axis (including depth axis, time axis), and a gray scale display comments, measurement, and other information

More parameter adjusting: Press Title to decrease the related parameter; Press the Number to increase the parameter. Press either Title or Parameter to change the On or Off status.

The parameter list as below:



## Color/ Power imaging

The Color mode is used to detect color flow information, and the color is designed to judge the direction and speed of blood flow. Generally, the color above the color bar indicates the flow towards the probe, while the color below the color bar indicates the flow away from the probe; the brighter the color, the faster the flow speed; while the darker the color, the slower the flow speed.

Power mode provides a non-directionally display of blood flow in the form of intensity as opposed to flow velocity. DirPower (Directional Power Mode) provides the additional information of flow direction towards or away from the probe.

To display the color/power image

- Turn on the system
- Tap C/P Mode to select the image mode
- Adjust the image as needed







### Live scanning with color mode



No.	Item	Description
1	Image mode	Color/Power Mode: Click here to enter Color mode and click again in color mode to enter Power mode.
2	Parameter	For more parameter adjusting
3	Gain adjusting	Up-and-down sliding Virtual Roller Adjustment gain
4	DR adjusting	Up-and-down sliding Virtual Roller Adjustment DR
5	Freeze button	To freeze or unfreeze the image
6	Sample line	Guide Line
7	Depth	To show depth of image
8	Focus	Adjustable focus area, according to different depth
9	Scanning parameter	The setting parameters when scanning
10	Image display area	Display image and direction of each probe mode identification, time line (M mode), the axis (including depth axis, time axis), and a gray scale display comments, measurement, and other information

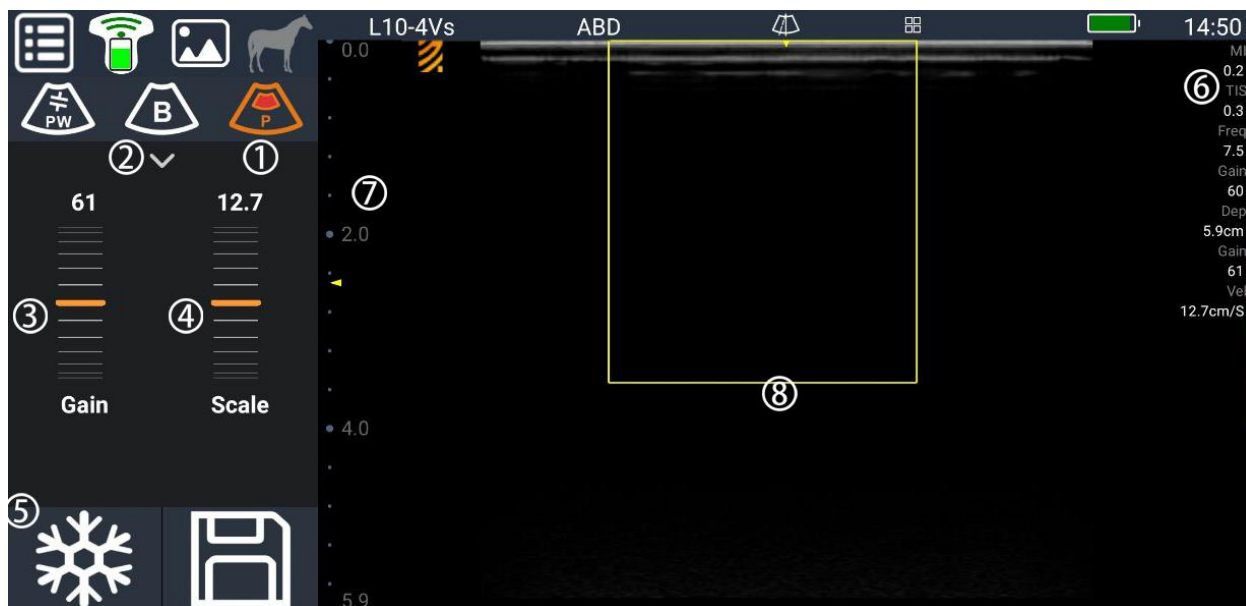
More parameter adjusting: Press Title to decrease the related parameter; Press the Number to increase the parameter. Press either Title or Parameter to change the On or Off status.

The parameter list as below:

 C Scale 11.4 C Gain 61 C Freq 6.0 C Steer 0	 C WF 4 C Priority 70 C Persistence 2 C ColorMap V0	 A.Power 82 Freq 7.5 TGC Depth 5.9	 Gain 60 Focus Pos 3 DR 75 FrameCorre 3	 TSI General Enhance 4 Gray Map 7 QBeam Off	 QBeam Off Expand Off L/R Flip Off U/D Flip Off
---	--	---	---	--	--



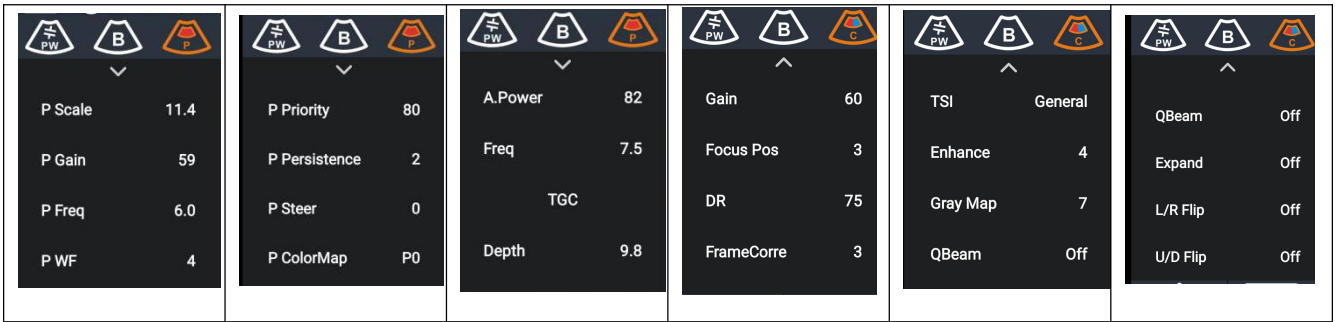
## Live scanning with power mode



No.	Item	Description
1	Image mode	Color/Power Mode: Click here to enter Color mode and click again in color mode to enter Power mode.
2	Parameter	For more parameter adjusting
3	Gain adjusting	Up-and-down sliding Virtual Roller Adjustment gain
4	DR adjusting	Up-and-down sliding Virtual Roller Adjustment DR
5	Freeze button	To freeze or unfreeze the image
6	Sample line	Guide Line
7	Depth	To show depth of image
8	Focus	Adjustable focus area, according to different depth
9	Scanning parameter	The setting parameters when scanning
10	Image display area	Display image and direction of each probe mode identification, time line (M mode), the axis (including depth axis, time axis), and a gray scale display comments, measurement, and other information

More parameter adjusting: Press Title to decrease the related parameter; Press the Number to increase the parameter. Press either Title or Parameter to change the On or Off status.

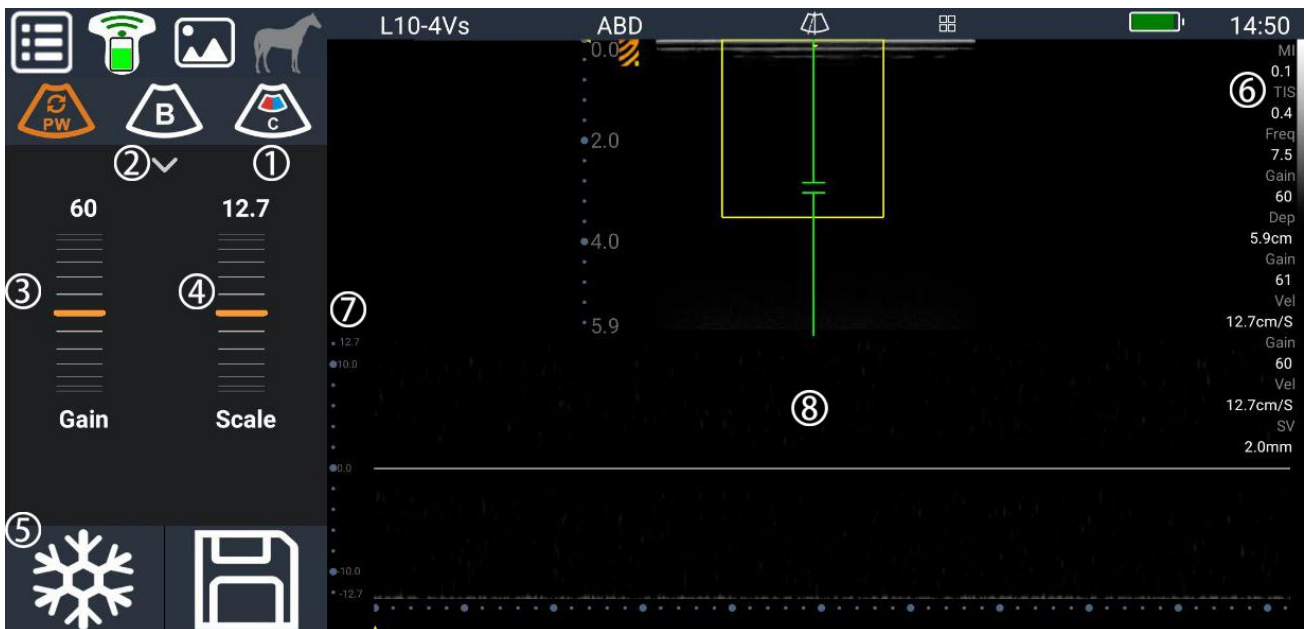
The parameter list as below:



## PW Doppler imaging

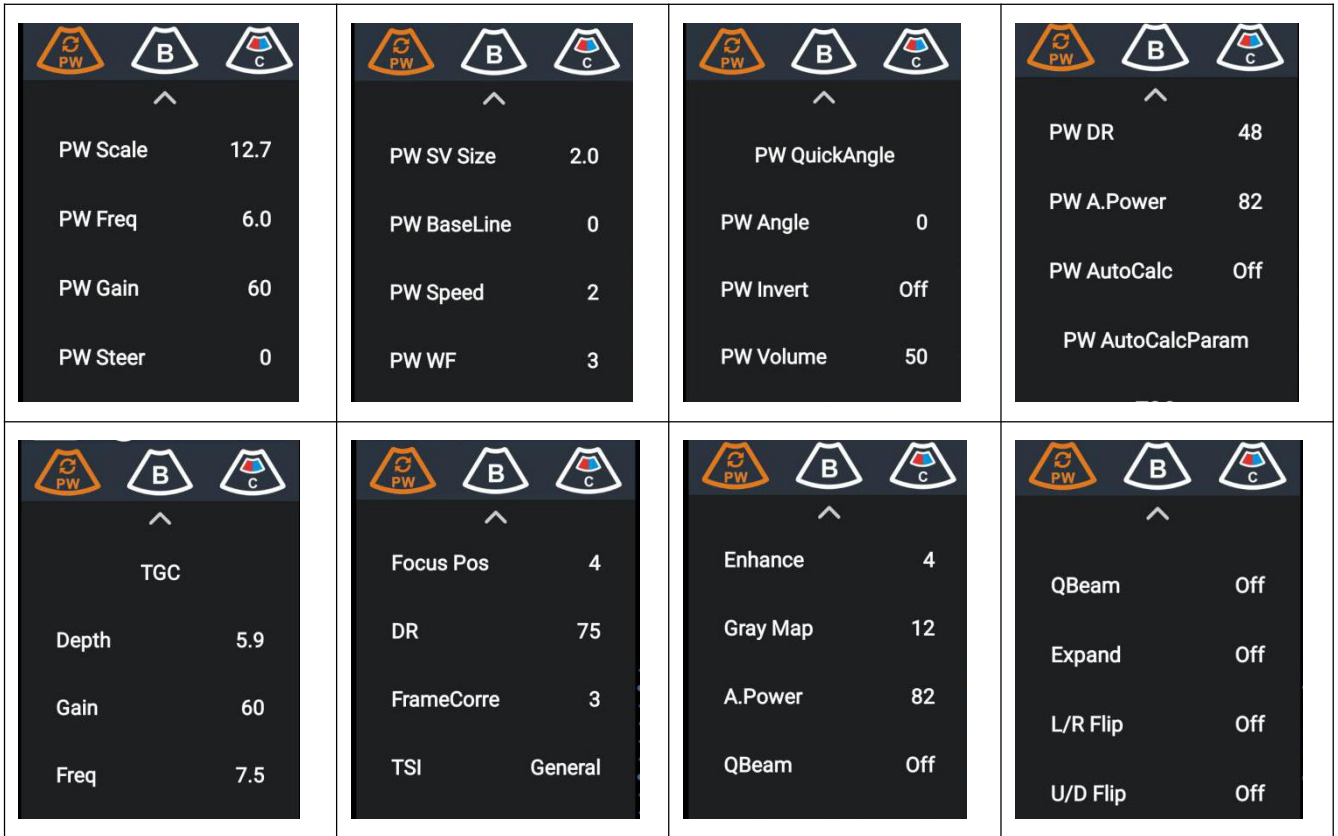
PW (Pulsed Wave Doppler) mode is used to provide blood flow velocity and direction utilizing a real-time spectral display. The horizontal axis represents time, while the vertical axis represents Doppler frequency shift. PW mode provides a function to examine flow at one specific site for its velocity, direction and features.

### Live scanning with PW mode



More parameter adjusting: Press Title to decrease the related parameter; Press the Number to increase the parameter. Press either Title or Parameter to change the On or Off status.

The parameter list as below:



## Parameters adjustment

The image adjustment is valid for the parameter item in the working state, by adjusting the parameter item position or value to optimize the image.

### The operating path is:

1. When you click on a selected parameter, it turns red. Then slide your finger to the right to increase the value, and slide your finger to the left to lower the value
2. Adjust the parameters, according to the image quality to select the appropriate value to complete the image adjustment.

Image adjustment is adjusted according to the parameter, the model contains the parameters of the parameters see the image parameters, there are four ways to adjust.

**Slide adjustment:** click on a selected parameter, it turns red. Then slide your finger to the right to increase the value, and slide your finger to the left to lower the value

**Drag and drop adjustment:** click the two level menu item, which can be adjusted in the corresponding target area. Only applies the "TGC" adjustment of the B mode, as shown below image.

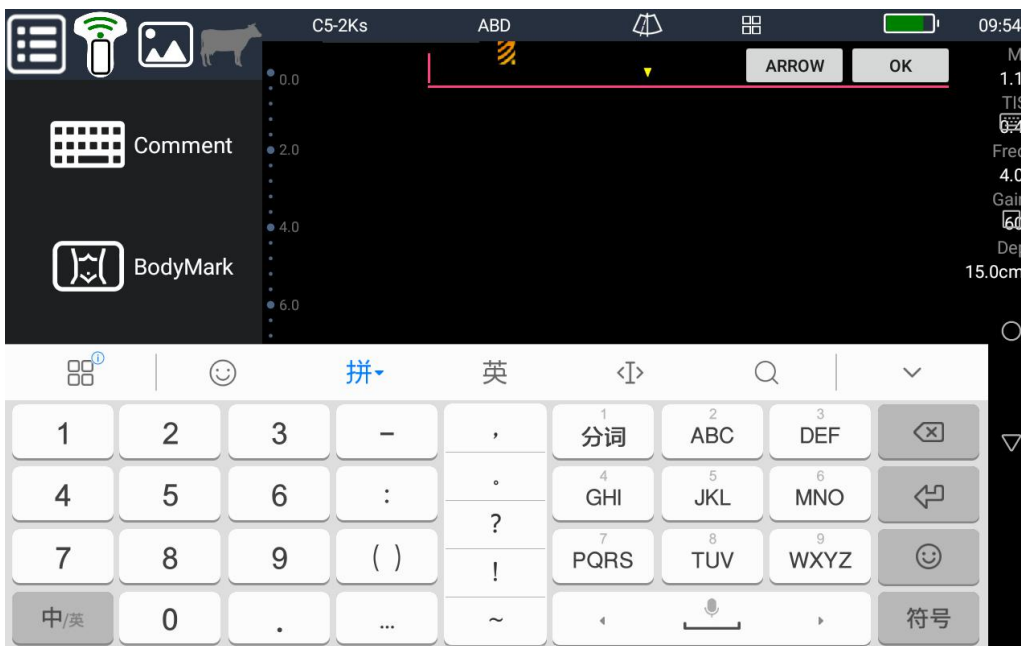


No.	Item	Description
1	Comment	To make comment on image
2	BodyMark	To make bodyMark on image
3	Measure	To measure on image
4	Save Cine	To save Cine
5	Freeze button	To freeze or unfreeze the image
6	Cine bar	Cine playback indicator

Note: The freeze button is white color in live scanning; the freeze button is orange color in image frozen status.

#### Comment menu:

This function is valid for frozen images. Click the Comment button to enter comment mode. Write comments on the dialog box and press OK to confirm. Now that the comment is displayed in the image area, press the annotation long enough to select the comment. Select comments to recompile or move location, Drag comments out of the image area to delete.



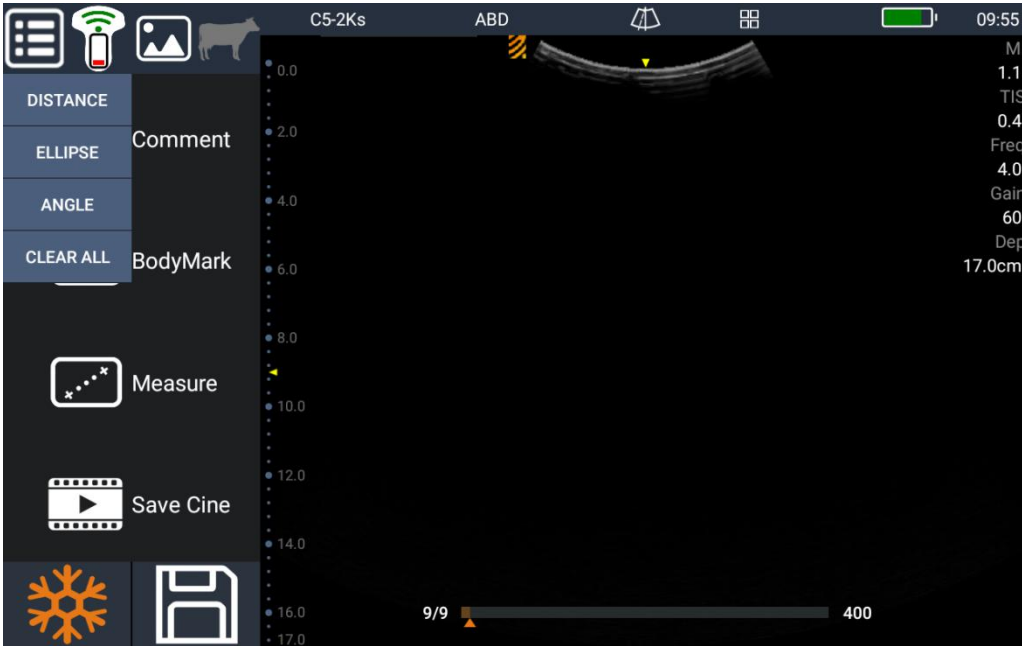
**Bodymark menu:**

Press BodyMark button to select the body mark on the image, And press BodyMark button to delete the body mark on the image.

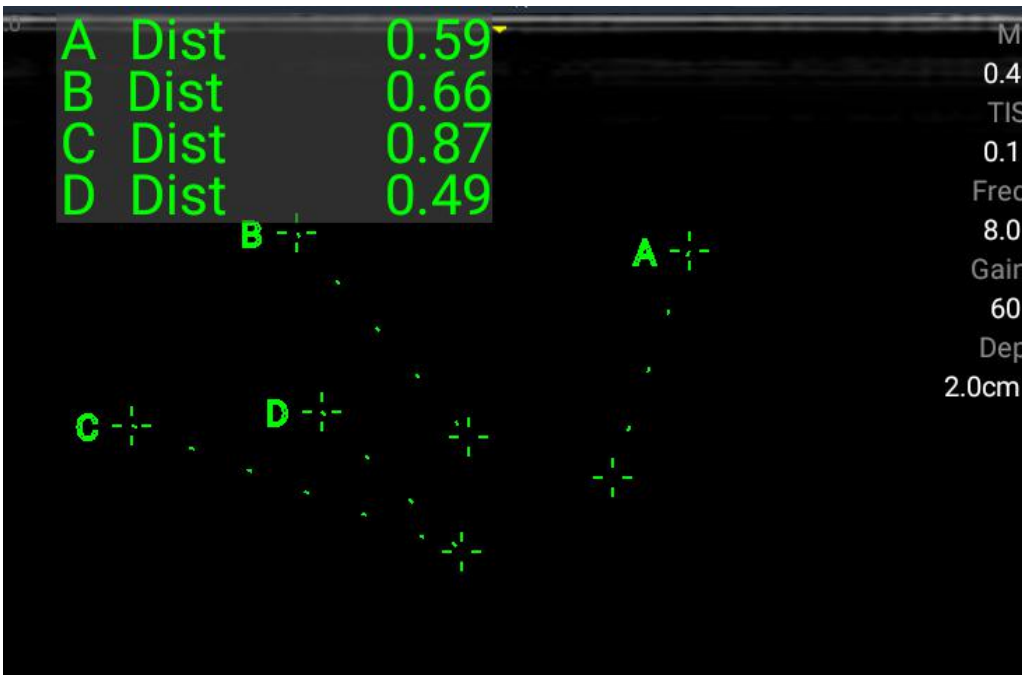


**Measure menu:**

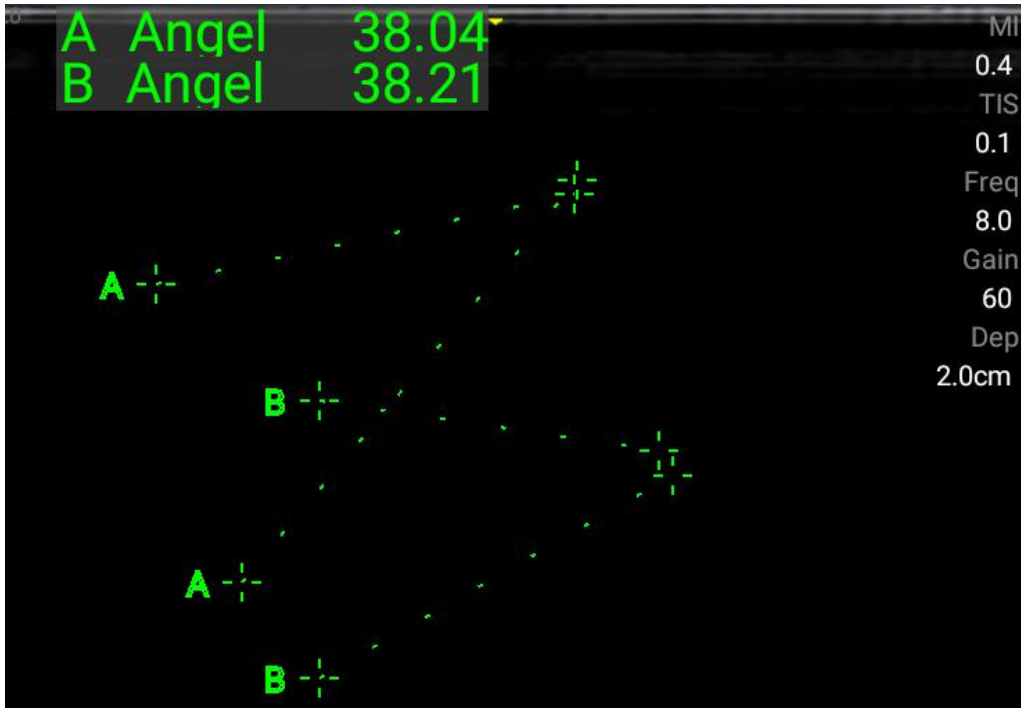
This function is valid for frozen images. Currently only support for conventional measurements, the measurement data can be withdrawn, delete, clear, hide and other operations.



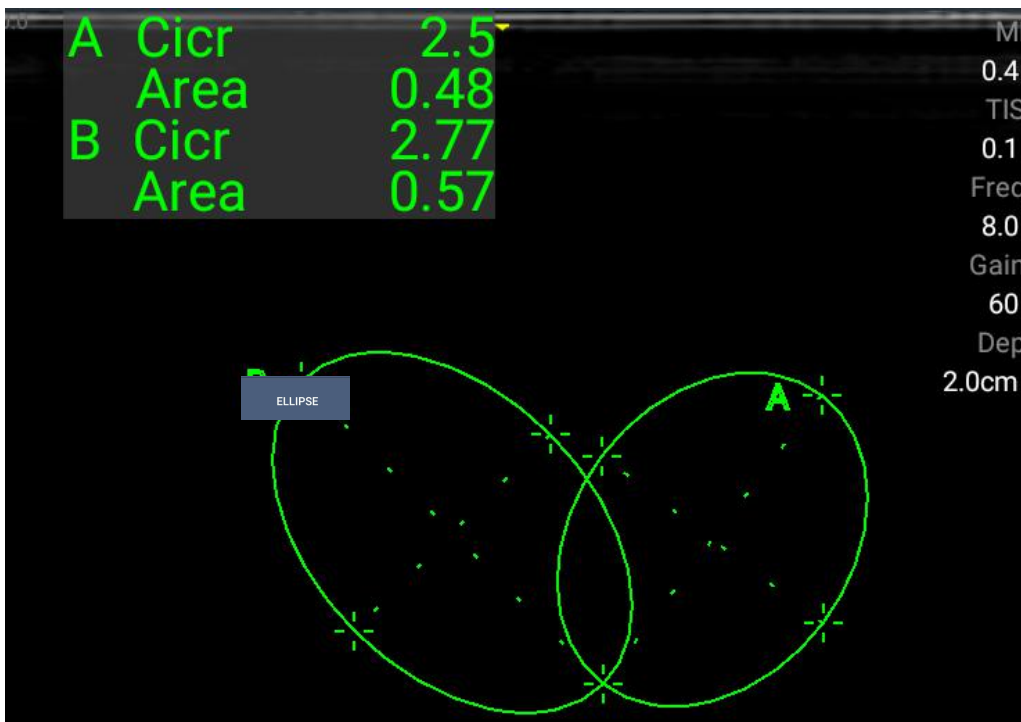
**Distance measure:** Press DISTANCE to measure distance on the image. Press CLEAR ALL to clear all the measure result.



**Angle measure:** Press ANGLE to measure angle on the image. Press CLEAR ALL to clear all the measure result.



Area measure: Press  to clear all the measure result.





<b>Attention:</b>	<ol style="list-style-type: none"> <li>1. During the measurement shutdown, all unsaved data will be lost</li> <li>2. During the measurement process, once the frozen state is released, all measurement information on the image is deleted.</li> <li>3. The change in mode clears the normal / applied measurement data on the screen.</li> <li>4. Prohibit meaningless measurements.</li> <li>5. Measurements are required in the ultrasound image area, and measurements in the non-image area are prohibited to avoid misdiagnosis.</li> <li>6. Measurements should be accurate, if the positioning is not accurate, please remove the measurement data to re-measure, to avoid the incorrect results caused by misdiagnosis.</li> </ol>
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### B mode Conventional measurement items

Measurement items	function
distance	Measure the distance between two points on the ultrasound image.
angle	Measure the angle between two intersecting planes on an ultrasound image.
Square meter	Measure the area and perimeter of a closed area on the ultrasound image.
Three distance volume	Measure the volume of the target object.
The length of the eeg	Measure the length of a curve on an ultrasound image.
Square meter of the eeg	Measure the area and perimeter of a closed curve area on the ultrasound image.
Length Ratio	Measure the length of the two segments on the ultrasound image and calculate the ratio.
Square meter ratio	Measure the area of two enclosed areas on the ultrasound image and calculate the ratio.
histogram	Measure the gray distribution of the ultrasonic echo signal in a closed area on a statistical ultrasound image.

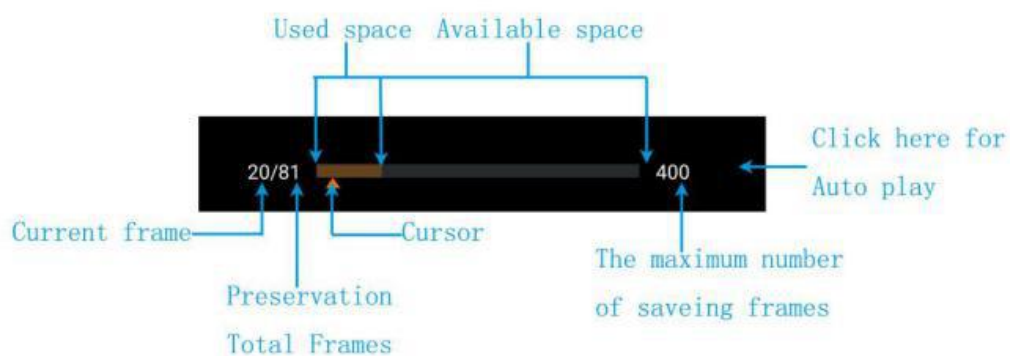
### M Conventional measurement items

Measurement items	Function
distance	Measure the distance between any two points on a vertical line at a time.
time	Measure the time interval between two points on the M image.
slope	The average slope between the two points is calculated by measuring the distance and time of the two points.
heart rate	On the M heart image, the time interval between the two cardiac cycles was measured and the heart rate was calculated.

## Cine and image

### Cine Mode

The app automatically stores the last 400 ultrasound frames (approximately 10 seconds), in cine mode. These frames can be viewed individually or as a video, individual frames can be saved as still images or the entire loop as a video.



### Cursor:

- Auto Playback: The slider position is automatically updated with automatic playback progress.
- Manual Play: Click the progress bar to move the slider position.

**Back:** Touch the screen and slide to the left.


**Forward:** Touch the screen and slide to the right.

### Auto Play / Pause:

- Touch the space on the right side of the progress bar for 1 to 2 seconds to turn on automatic playback.
- Click the same area in auto play mode to exit auto play.



This function is valid for frozen images. The system supports single-frame images, continuous multi-frame image storage, single-frame image in smart devices.

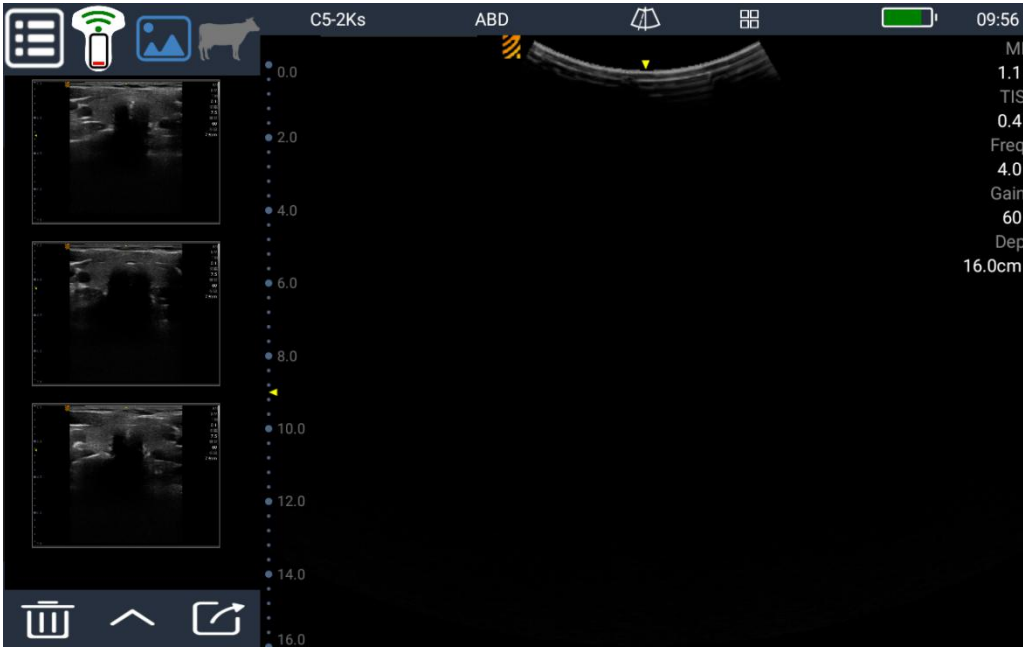
## Patient information

Press  for patient information manage menu including New patient, New exam, Cancel exam, Exam list menu. Click here to create a new patient directory where you can record patient information.


Patient Info					
No.		Record No.		Exam No.	2019092809562
Name		Animal Group	Ox	Gender	Unknown
Birth Date	28/09/2019	Age	Years	Host	
Exam Doctor		ReferralDoctor			
ABD    OB    CARDIOLOGY    SMALL PARTS					
Study Description					
Primary Indications					
Secondary Indications					
Height		cm			
Weight		kg			
New Animal	New Exam	Cancel Exam	Exam List	OK	Exit

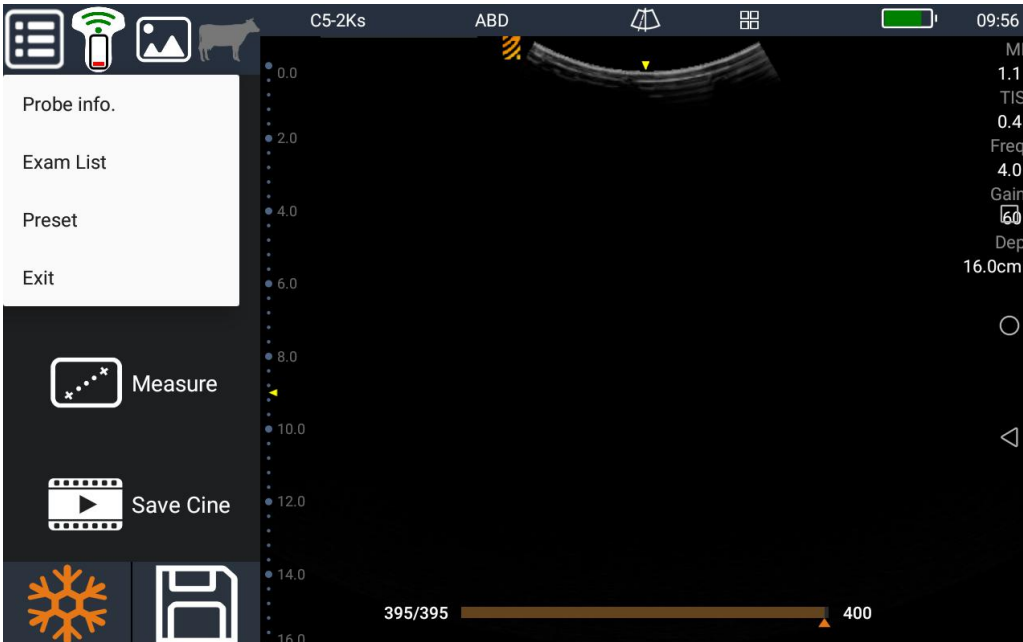
## Thumbnail image

Press  for thumbnail menu, the saved image is listed in this menu. And press  to delete the image.



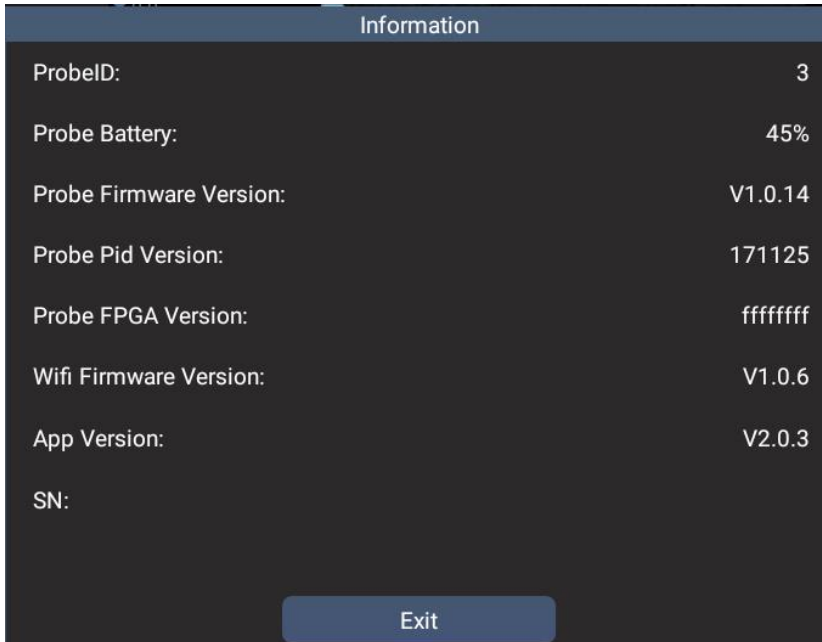
## Settings

Press  to get the setting menu.



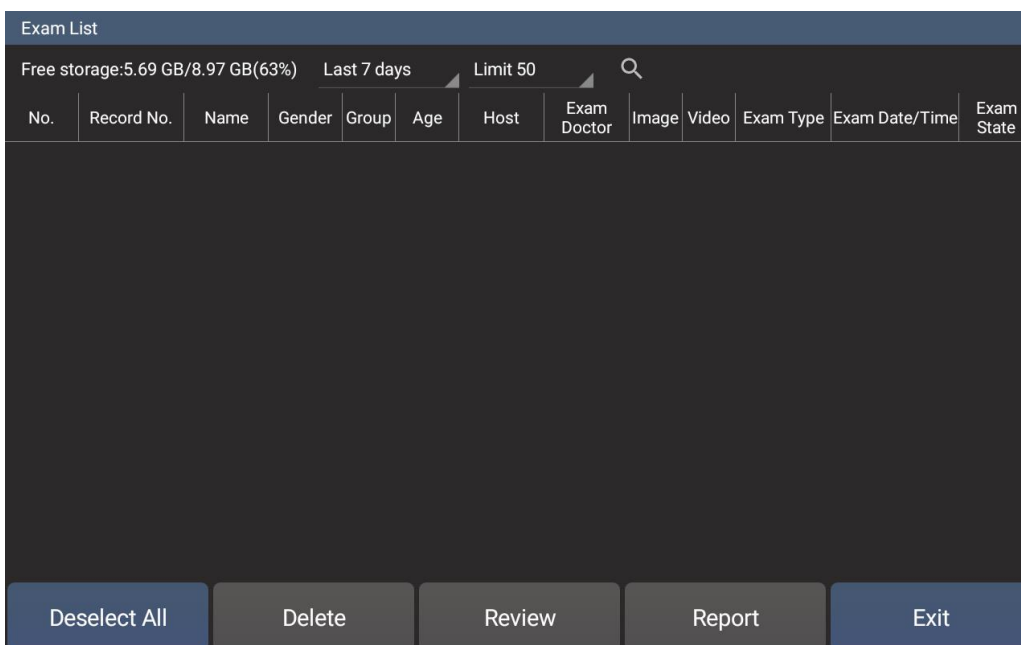
## Probe information

Press "Probe info" to check the probe information, including probe ID, probe battery, probe firmware version, probe pid version, FPGA version, wifi firmware version, and version of application.



## Exam list

Press "Exam List" to check saved exam information. Show the patients who have been treated before.



## Preset

**System preset:** Set the parameters and check mode that you display when you boot.

System Preset: Here you can preset some basic information such as language/Parameter area location/screen orientation.

The screenshot shows a 'Preset' menu with a sidebar on the left containing buttons for 'System Preset', 'Image Preset', 'Exam Preset', and 'Exit'. The main area has tabs for 'General Preset', 'Hospital Info', and 'Login Management'. Under 'General Preset', the following settings are visible:

Language	English
Parameter area location	Left
screen orientation	Landscape
Hide NavigationBar	<input checked="" type="checkbox"/>

An 'Apply' button is located at the bottom right of the main area.

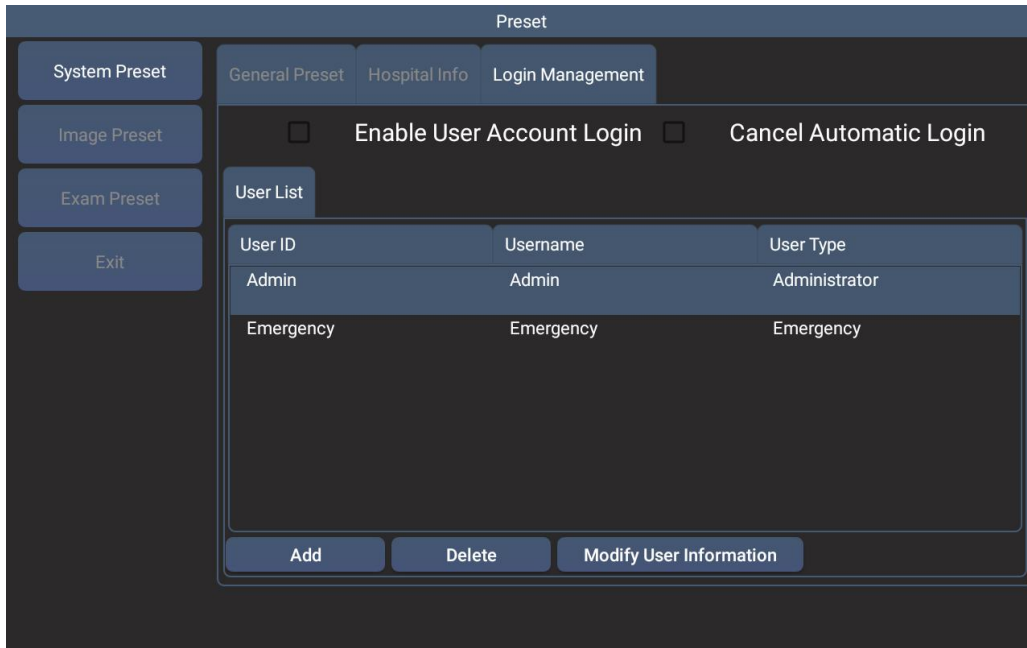
**Hospital information:** Manage the hospital information.

The screenshot shows the 'Hospital Info' tab selected in the 'Preset' menu. The form contains the following input fields:

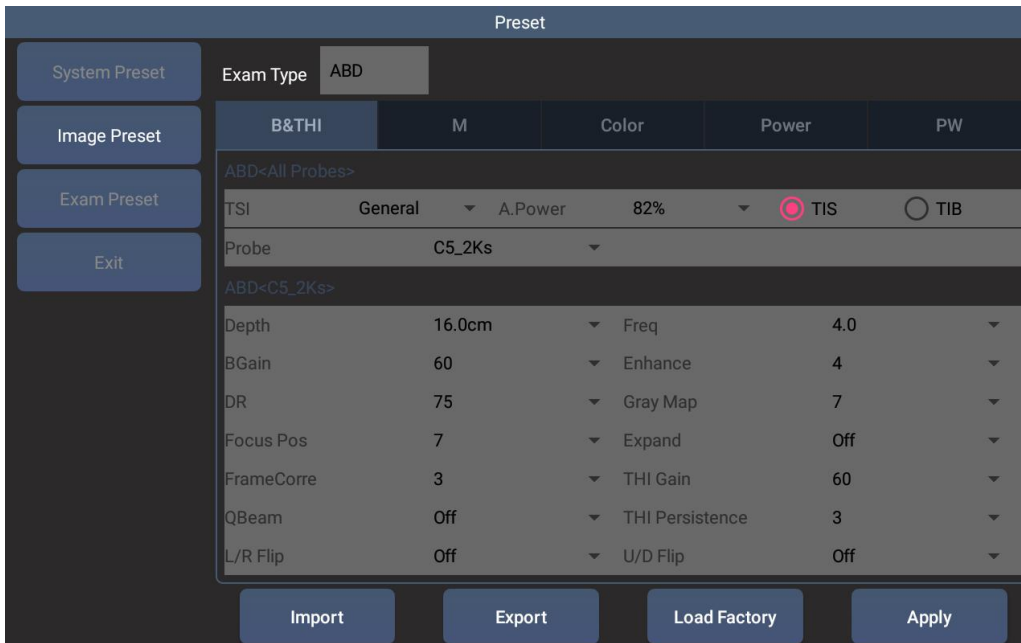
Name	
Address	
Telephone	
Website	
Department	

An 'Apply' button is located at the bottom right of the main area.

**Login Management:** Manage the login information.

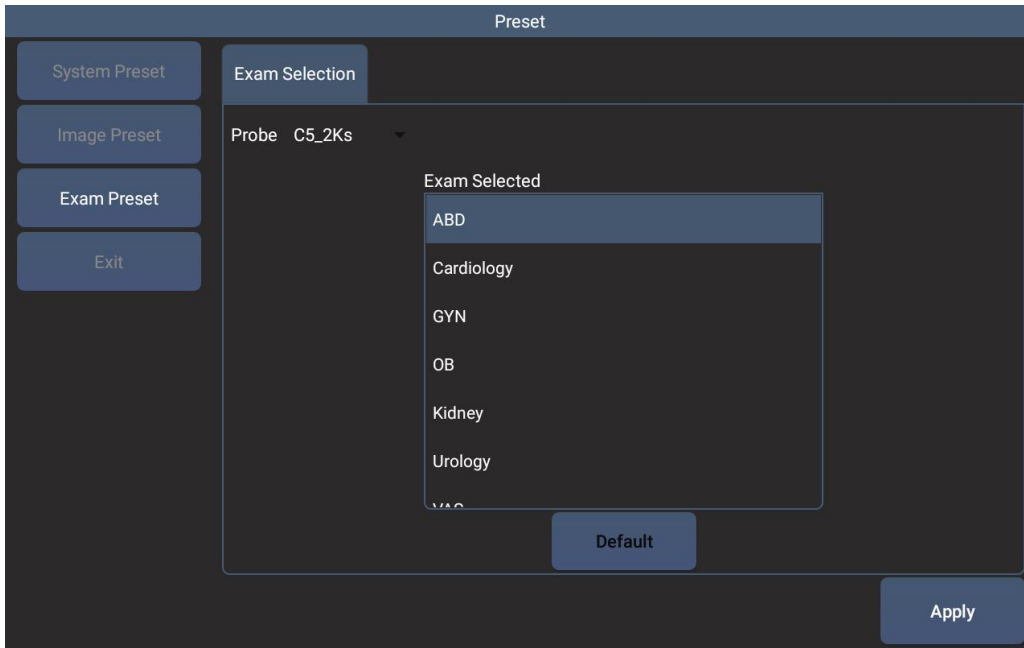


**Image preset:** Here you can preset the initial parameters in your check type and mode.



**Exam preset:**

Here you can preset the initial check mode under different probes.





# Chapter 4: Troubleshooting and Maintenance

This chapter contains information to help correct problems with system operation, to enter a software license, and to take proper care of the system, transducer, and accessories.

## Troubleshooting

If you encounter difficulty with the system, use the following list to help troubleshoot the problem. If the problem persists, contact BMV Technical Support.

System does not turn on Check all power connections.

Remove the DC input connector , wait 10 seconds, then reinstall the DC input connector. Ensure that the battery is charged.

System image quality is poor Adjust the screen to improve viewing angle. Adjust the brightness. Adjust the gain.

## Upgrade

This equipment upgrade includes software upgrades and hardware upgrades. Software upgrades can be installed by the user to install the application package, or by the application market to download and install the updated version of the software. The hardware upgrade is done by the professional staff of the company.

## Maintenance

Use the recommendations in this document when cleaning or disinfecting the ultrasound system, transducer, and accessories. Use the cleaning recommendations in the peripheral manufacturer's instructions when cleaning or disinfecting peripherals.

No periodic or preventive maintenance is

required for the system, transducer, or accessories other than cleaning and disinfecting the transducer after every use. There are no internal components that require periodic testing or calibration.

All maintenance requirements are described in this chapter and in

the ultrasound system service manual.

Performing maintenance procedures not described in the user guide or service manual may void the product warranty.

Contact BMV Technical Support for any maintenance questions. (See "BMV Technical Support".)

## Routine maintenance

1. The surface of the probe is coated with the appropriate amount of medical ultrasonic couplant at diagnosis, and the resulting image will be unclear if no couplant is used.
2. After each use of the probe, wipe the probe gently and thoroughly with 3.4% saturated acetaldehyde solution with a damp and hot cloth.
3. Keep the battery once a month to complete a charge and discharge.
4. Equipment in use, there will be inherent aging, the need for regular performance and functional maintenance.
5. Repeated disinfection of the device will result in decreased safety and performance of the device. Check the performance of the probe regularly.
6. Regularly clean up the phone / ipad / computer storage, to ensure adequate storage space, to prevent the lack of space caused some of the software features do not work, such as image / movie storage function.

## Care & maintenance

Please note the following important points:

- The waterproofing level of the main unit is IP67. That is protected from total dust ingress and from low pressure water jets from any direction.
- The waterproofing level of the scanner probe is IP68. That is protected from total dust ingress and from immersion between 15 centimeters and 1 meter in depth.
- The battery charger and charging carry case are not waterproof – avoid getting them wet.

Do not expose the transducer to materials containing the following agents:

- Acetone
- Methanol
- Mineral oil
- Iodine
- Freon
- Industrial cleaners
- Materials containing perfumes (lotions, gels, etc.)

<b>WARNING:</b>	Never sterilize the transducer with autoclave, ultraviolet, gamma radiation, gas, steam or heat.
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## Probe

While every attempt has been made to make the probe as rugged as possible the crystal array remains vulnerable and should be protected from knocks. The probe has a protective sheath covering the length of cable subject to wear and flexing. Any damage to this sheath or the rest of the cable should be repaired before further use to prevent moisture ingress that will rapidly damage the probe. The probe should be checked regularly for such damage.

## Storage

Clean and dry the probe head prior to storage in dry location. Do not store the transducer in gels or cleaning/disinfecting solutions. This will lead to premature deterioration of the probe.

## Cleaning and disinfecting

The exterior surface of the ultrasound system and the accessories can be cleaned and disinfected using a recommended cleaner or disinfectant.

<b>WARNING:</b>	To avoid electrical shock, before cleaning, disconnect the system from the power supply or remove it from the stand.
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## Breakdown Maintenance

When the equipment fails, the user is forbidden to dismantle the equipment by himself, and the professional maintenance personnel approved by our company.

When the software fails, the user can back up the data, uninstall the original software, and then re-download from the official website.

<b>Attention:</b>	Maintenance personnel and users upgrade process, power failure may lead to the upgrade failed to restart Do not disassemble the ultrasound probe.
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<b>Caution:</b>	<p>Transducers must be cleaned after every use. Cleaning transducers is necessary prior to effective disinfection. Ensure that you follow the manufacturer's instructions when using disinfectants.</p> <p>Using a non-recommended cleaning or disinfection solution, using incorrect solution strength, or immersing a transducer deeper or for a longer period of time than recommended can damage or discolor the transducer and void the transducer warranty.</p> <p>Do not allow disinfectant to contact metal surfaces. Use a soft cloth lightly dampened in a mild soap or compatible cleaning solution to remove any disinfectant that remains on metal surfaces.</p>
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## Clean the smart device

Dampen a clean, non-abrasive, cotton cloth with an ethanolic-based liquid cleaner, and wipe the screen clean.

Apply the cleaner to the cloth rather than the surface of the screen.

## Clean and disinfect system surfaces

- 1 Turn off the system.
  - 2 Disconnect the system from the power supply, or remove it from the stand.
  - 3 Clean the exterior surfaces using a soft cloth lightly dampened in a mild soap or detergent cleaning solution to remove any particulate matter or body fluids.
- Apply the solution to the cloth rather than the surface.

- 4 Mix the disinfectant solution compatible with The system, following disinfectant label instructions for solution strengths and disinfectant contact duration.
- 5 Wipe surfaces with the disinfectant solution.
- 6 Air dry or towel dry with a clean cloth.

To disinfect the transducer and its cable, use the immersion method or the wipe method. Immersible transducers can be disinfected only if the product labeling indicates they can be used with an immersion method.

<b>Caution:</b>	<p>Attempting to disinfect a transducer or transducer cable using a method other than the one included here can damage the transducer and void the warranty.</p>
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## Clean and disinfect a transducer

- 1 Remove any transducer sheath.
  - 2 Clean the surface using a soft cloth lightly dampened in a mild soap or detergent cleaning solution to remove any particulate matter or body fluids.
- Apply the solution to the cloth rather than the surface.
- 3 Rinse with water or wipe with water-dampened cloth, and then wipe with a dry cloth.
  - 4 Mix the disinfectant solution compatible with the transducer, following disinfectant label instructions for solution strengths and disinfectant contact duration.
  - 5 Wipe surfaces with the disinfectant solution.
  - 6 Air dry or towel dry with a clean cloth.
  - 7 Examine the transducer and cable for damage such as cracks, splitting, or fluid leaks.
- If damage is evident, discontinue use of the transducer, and contact BMV or your local representative.

# Chapter 5: Specifications

This chapter contains system and accessory specifications and standards. The specifications for recommended peripherals are in the manufacturers' instructions.

## Product Description:

System weight: 650g/1.43lbs (including battery)  
Dimensions: 18.5x8x6cm / 7.30 x 3.15 x 2.35 inch  
Drop tested: 3 feet/91.4 cm  
Boot up time: Less than 10 seconds  
Mechanical: ABS+TPU  
Architecture:All-digital broadband  
Scanner wireless link to compatible viewing device using Wifi connection

## Imaging modes

- 2D (256 gray shades)
- M Mode

## Image storage

Storage of images and cine loops limited only by available space on smart device linked with scanner.

## Accessories

The following items are either included with or available for use on the ultrasound system.

- Goggles
- Tablet
- Sunshade
- Belt
- APP software
- Wireless charger
- Mobile Car Charger
- Fielding bag
- Introducer
- Power adaptor and its line

## Battery

Power and charging

Removable Li-ion battery gives 12h run time \*

Battery charge time 5.0h. Only use BMV approved/supplied battery, 5V vehicle power supply, battery charger and DC power adapter.

CHARGER: Input:100-240 VAC, 50/60Hz, 0.5A / Output: 5V, 2A.

BMV Vehicle Power Outlet/Cigarette Plug Cable : 5V DC, 2A Fused. Only to be used when charging from a vehicle supply.

Battery: 7.4Vdc, 4000mAh.

## Electrical

Power Supply Input 100-240 VAC, 50/60 Hz, 0.5 A  
Power Supply Output 5 V DC, 2.0 A

### NOTE:

The CE region applied voltage is 220-240V~.

## Environmental limits

### Operating

System, battery, and transducer  
10–40°C (50–104°F), 15–95% R.H.  
700 to 1060hPa(0.7 to 1.05 ATM)

### Shipping and storage

System and transducer  
-35–65°C (-31–149°F), 15–95% R.H.  
500 to 1060hPa (0.5 to 1.05 ATM)

## Electromechanical safety

## standards

EN 60601-1:2003, European Norm, Medical Electrical Equipment–Part 1. General Requirements for Safety.

EN 60601-1-1:2001, European Norm, Medical Electrical Equipment—Part 1. General Requirements for Safety—Section 1-1. Collateral Standard. Safety Requirements for Medical Electrical Systems.

EN 60601-2-37:2008, European Norm, Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment.

CAN/CSA C22.2, No. 601.1-M90: 2002, Canadian Standards Association, Medical Electrical Equipment—Part 1. General Requirements for Safety (including CSA 601.1 Supplement 1:1994

and CSA 601.1 1B-90:2002).

CEI/IEC 61157:2007, International Electrotechnical Commission, Requirements for the Declaration of the Acoustic Output of Medical Diagnostic Ultrasonic Equipment.

UL 60601-1 (1st Edition), Underwriters Laboratories, Medical Electrical Equipment-Part 1: General Requirements for Safety.

# Chapter 6: Accessories

## Purchases & Upgrades

To order additional supplies and accessories, go to [www.BMV.cc/contact-us](http://www.BMV.cc/contact-us) and contact BMV.

			
<p><b>I-scan smart goggle</b> Customized Binocular Type HD Wearable Video Glasses</p>	<p><b>Power bank with bag</b> <b>10000mAh</b> 147x71.2x14.2mm, supply power for goggle</p>	<p><b>Rectal Probe Introducer</b> Rounded 85cm,eases your shoulder and arm strain for Fetal Aging, Pregnancy Testing</p>	<p><b>Tablet with S10 software installed</b> Use as a viewing device</p>
			
<p><b>Belt for S10 main unit</b> To hang the S10</p>	<p><b>Wrist Mount for phone</b> To be used in conjunction with your choice of Phone</p>	<p><b>Tablet Sunshade</b> To be used with tablet when in the field</p>	<p><b>TYPE-C Video Converter</b> To transfer the images in other screen</p>
			
<p><b>Wireless charger</b> Wireless charger for S10 main unit</p>	<p><b>Mobile Car Charger</b> Battery Charging in the car</p>	<p><b>Field working bag</b> Storage the probe and its accessories</p>	<p><b>Carrying case</b> Storage the S10 and accessories</p>